



## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No:	10/610,337	Confirmation No. Unknown
Date Filed:	June 30, 2003	
Application Title:	Methods For The Determination Of PCR Amplified Nucleic Acids Using Linear Beacons	
Applicants:	Gildea et al.	
Group Art Unit:	Not Assigned	
Examiner:	Not Assigned	
Certified Mail No.:	7099 3400 0007 5728 4548	

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37 C.F.R. § 1.8**

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 Brian D. Gildea  
 Reg. No. 39,995

**Information Disclosure Statement**

Commissioner For Patents  
 Dear Sir or Madam:

In accordance with 37 C.F.R. § 1.97, Applicant(s) hereby make of record the following information and publications. Copies of PTO Form 1449 and each publication listed thereon [INCLUDE REFERENCE CODE, E.G., (U.S. PATENTS: AA through AZ); (BA - BZ FOREIGN PATENTS) &/OR (CA - CZ JOURNAL ARTICLES ETC.)] accompany this statement, either in the entirety or in the relevant parts.

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Respectfully submitted,

Date: Sept 30, 2003

  
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## INFORMATION DISCLOSURE STATEMENT

ATTY. DOCKET NO.: BP9703US-DV2  
 APPLICANT: Brian D. Gildea, et al  
 SERIAL NO.: 10/610,337  
 FILING DATE: June 30, 2003  
 GROUP:

US PATENT DOCUMENTS							
EXAM INIT. /KH/		DOCUMEN T NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA	4,174,384	Nov. 13, 1979	Ullman	424		Oct. 12, 1976
	AB	4,261,968	Apr. 14, 1981	Ullman	424		May 10, 1979
	AC	4,542,104	Sep. 17, 1985	Stryer	436		Apr. 6, 1983
	AD	4,666,862	May 19, 1987	Chan	436		Aug. 14, 1984
	AE	4,725,536	Feb. 16, 1988	Fritsch	435		Sep. 19, 1985
	AF	4,725,537	Feb. 16, 1988	Fritsch	435		Sep. 19, 1985
	AG	4,766,062	Aug. 23, 1988	Diamond	435		May 7, 1984
	AH	4,822,733	Apr. 18, 1989	Morrison	435		May 28, 1985
	AI	4,868,103	Sep. 19, 1989	Stavrianopoulos	435		Feb. 19, 1986
	AJ	4,996,143	Feb. 26, 1991	Heller	435		Apr. 13, 1990
	AK	5,118,801	Jun. 2, 1992	Lizardi	536		Sep. 30, 1988
	AL	5,210,015	May 11, 1993	Gelfand	435		Aug. 6, 1990
	AM	5,237,515	Aug. 17, 1993	Herron	364		Apr. 10, 1991
	AN	5,288,611	Feb. 22, 1994	Kohne	435		Mar. 19, 1992
	AO	5,312,728	May 17, 1994	Lizardi	435		May 4, 1992
	AP	5,439,793	Aug. 8, 1995	Rose	435		Jul. 19, 1990
	AQ	5,439,797	Aug. 8, 1995	Tsien	435		Aug. 30, 1993
	AR	5,491,063	Feb. 13, 1996	Fisher	435		Sep. 1, 1994
	AS	5,514,546	May 7, 1996	Kool	435		Sep. 1, 1993
	AT	5,527,675	Jun. 18, 1996	Coull	435		Aug. 20, 1993
	AU	5,538,848	Jul. 23, 1996	Livak	435		Nov. 16, 1994
	AV	5,539,082	Jul. 23, 1996	Nielsen	530		Apr. 26, 1993
	AW	5,573,906	Nov. 12, 1996	Bannwarth	435		Mar. 22, 1993
	AX	5,601,984	Feb. 11, 1997	Kohne	435		Jun. 2, 1995
	AY	5,607,834	Mar. 4, 1997	Bagwell	435		Apr. 10, 1995
	AZ	5,612,183	Mar. 18, 1997	Kohne	435		Jun. 2, 1995
	AAA	5,623,049	Apr. 22, 1997	Lobberding	530		Sep. 6, 1994
	AAB	5,631,169	May 20, 1997	Lakowicz	436		Jan. 19, 1994
	AAC	5,641,631	Jun. 24, 1997	Kohne	435		Jun. 2, 1995
	AAD	5,643,762	Jul. 1, 1997	Ohshima	435		Aug. 2, 1994
	AAE	5,675,517	Oct. 7, 1997	Stokdijk	364		Apr. 25, 1995
	AAF	5,691,145	Nov. 25, 1997	Pitner	435		Aug. 27, 1996
	AAG	5,691,146	Nov. 25, 1997	Mayrand	435		Sep. 11, 1996
	AAH	5,705,346	Jan. 6, 1998	Okamoto	435		Jun. 25, 1996
	AAI	5,707,804	Jan. 13, 1998	Mathies	435		Mar. 27, 1995
	AAJ	5,714,331	Feb. 3, 1998	Buchardt	435		Jul. 24, 1996
	AAK	5,723,294	Mar. 3, 1998	Glass	435		Mar. 5, 1996
	AAL	5,736,336	Apr. 7, 1998	Buchardt	435		May 1, 1997
	AAM	5,763,167	Jun. 9, 1998	Conrad	435		Mar. 21, 1994
	AAN	5,770,365	Jun. 23, 1998	Lane	435		Aug. 25, 1995
	AAO	5,773,571	Jun. 30, 1998	Nielsen	530		Feb. 1, 1996
/KH/	AAP	5,780,233	Jul. 14, 1998	Guo	435		Jun. 6, 1996

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/KH/	BK	WO98/24933	June 11, 1998	WIPO			
	BL	WO98/26093	June 18, 1998	WIPO			
	BM	WO98/29568	July 9, 1998	WIPO			
	BN	WO98/30883	July 16, 1998	WIPO			
	BO	WO98/37232	Aug. 27, 1998	WIPO			
	BP	WO97/45539	Dec. 4, 1997	WIPO			
	BQ	WO98/10096	Mar. 12, 1998	WIPO			
	BR	WO93/10267	May 27, 1993	EUROPEAN PATENT SPECIFICATION			
	BS	WO93/25706	Dec 23, 1993	EUROPEAN PATENT SPECIFICATION			
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	CC	Blok, H.J. et al, Amplifiable hybridization probes containing a molecular switch. <i>Molecular and Cellular Probes</i> 11, 187-194 (1997)
	CD	Cardullo, R.A. et al, Detection of nucleic acid hybridization by nonradiative fluorescence resonance energy transfer. <i>Proc. Natl. Acad. Sci. USA</i> 85, 8790-8794 (1988)
	CE	Carmel, A. et al, Intramolecularly-quenched fluorescent peptides as fluorogenic substrates of leucine aminopeptidase and inhibitors of clostridial aminopeptidase. <i>Eur. J. Biochem.</i> 73, 617-625 (1977)
	CF	Chen, X. et al, A homogeneous, ligase-mediated DNA diagnostic test. <i>Genome Res.</i> 8, 549-556 (1998)
	CG	Clegg, R.M., Fluorescence Resonance Energy Transfer and Nucleic Acids. <i>Methods in Enzymology</i> 211, 353-388 (1992)
	CH	Corey, D.R. 48000-fold Acceleration of Hybridization by Chemically Modified Oligonucleotides. <i>J. Am. Chem. Soc.</i> 117, 9373-9374 (1995)
	CI	Diederichsen, U. et al, Self-Pairing PNA with alternating alanyl/homoalanyl backbone. <i>Tett. Lett.</i> 37, 475-478 (1996)
	CJ	Dueholm, K.L. et al, Chemistry, properties and applications of PNA (Peptide Nucleic Acid). <i>New J. Chem.</i> 21, 19-31 (1977)
	CK	Egholm, M. et al, PNA hybridizes to complementary oligonucleotides obeying the Watson-Crick hydrogen-bonding rules. <i>Nature</i> 365, 566-568 (1993)
	CL	Ferguson, J.A. et al, A fiber-optic DNA biosensor microarray for the analysis of gene expression. <i>Nature Biotech.</i> 14, 1681-1684 (1996)
o	CM	Fujii, M. et al, Nucleic acid analog peptide (NAAP)2, syntheses and properties of novel DNA analog peptides containing nucleobase linked $\beta$ -aminoalanine. <i>Bioorg. &amp; Med. Chem. Lett.</i> 7, 637-640 (March 1997)
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/KH/	CP	Haasnoot, C.A.G. et al, Structure, kinetics and thermodynamics of DNA hairpin fragments in solution. <i>J. Molecular Structure and Dynamics</i> 1, 115-129 (1983)

EXAMINER: \_\_\_\_\_ /Kenneth Horlick/

DATE CONSIDERED: 09/17/2007

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/KH/	AAQ	5,786,461	Jul. 28, 1998	Buchardt	536		May 1, 1997
	AAR	5,787,032	Jul. 28, 1998	Heller	365		Jun. 10, 1994
	AAS	5,800,996	Sep. 1, 1998	Lee	435		Oct. 4, 1996
	AAT	5,804,386	Sep. 8, 1998	Ju	435		Jan. 15, 1997
	AAU	5,831,014	Nov. 3, 1998	Cook	530		Feb. 22, 1995
	AAV	5,827,660	Oct. 27, 1998	Singer	435		Aug. 9, 1996
	AAW	5,846,729	Dec. 8, 1998	Wu	435		July 1, 1997
	AAX	5,866,336	Feb. 1, 1999	Nazarenko	435		Jan. 3, 1997
	AAY	5,879,885	Mar. 9, 1999	Becker	435		Jun. 7, 1995
	AAZ	5,925,517	Jul. 20, 1999	Tyagi	435		May 12, 1995
	ABA	5,985,563	Nov. 16, 1999	Hyldig-Nielsen et al.	435	6	Jun. 5, 1997
	ABB	5,348,853	Sep. 20, 1994	Wang, et al.	435	6	Dec. 16, 1991
	ABC	6,177,249	Jan. 23, 2001	Kwok, et al.	435	6	Apr. 20, 1999
	ABD	5,487,972	Jan 30, 1996	Gelfand et al.	435	6	Jan 5, 1993
	ABE	5,629,178	May 13, 1997	Demers	435	91.2	Oct 28, 1994
	ABF	5,635,347	Jun 3, 1997	Link et al.	435	6	Jan 28, 1994
	ABG	5,656,461	Aug 12, 1997	Demers	435	91.1	Jun 6, 1995
	ABH	5,723,591	Mar 3, 1998	Livak et al.	536	22.1	Nov 15, 95
	ABI	5,804,375	Sept 8, 1998	Gelfand et al.	435	6	Sept 8, 1998
	ABJ	5,849,544	Dec 15, 1998	Harris et al.	435	91.2	Feb 3, 1994
	ABK	5,876,930	Mar 2, 1999	Livak et al.	435	6	Nov 15, 1995
	ABL	5,888,733	Mar 30, 1999	Hyldig-Nielsen et al.	435	6	Oct 2, 1996
	ABM	5,891,625	April 6, 1999	Buchardt et al.	435	6	Dec 23, 1993
	ABN	5,912,145	Jun 15, 1999	Stanley	435	91.1	Dec 8, 1994
	ABO	5,972,610	Oct 26, 1999	Buchardt et al.	435	6	Oct 8, 1997
	ABP	6,020,124	Feb 1, 2000	Sorenson	435	6	Jun 7, 1995
	ABQ	6,030,787	Feb 29, 2000	Livak et al.	435	6	Dec 7, 1998
	ABR	6,103,476	Aug 15, 2000	Tyagi et al.	435	6	Mar 15, 1999
	ABS	6,110,676	Aug 29, 2000	Coull et al.	435	6	Nov 3, 1997
	ABT	6,214,979	April 10, 2001	Gelfand et al.	536	22.1	Sept 19, 1997
	ABU	6,355,421	Mar 12, 2002	Coull et al.	435	6	Oct 27, 1998
/KH/	ABV	6,361,942	Mar 26, 2002	Coull et al.	435	6	Mar 24, 1999

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EXAM . INIT.		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION YES	NO
/KH/	BA	EP0853129A2	Jul. 15, 1998 ✓	EPO				
	BB	WO95/13399	May 18, 1995 ✓	WIPO				
	BC	WO97/14026	Apr. 17, 1997 ✓	WIPO				
	BD	WO97/18325	May 22, 1997 ✓	WIPO				
	BE	WO97/39008 ✓	Oct. 23, 1997	WIPO				
	BF	WO97/46711 ✓	Dec. 11, 1997	WIPO				
	BC	WO97/46714 ✓	Dec. 11, 1997	WIPO				
	BH	WO98/10096 ✓	March 12, 1998	WIPO				
	BI	WO98/14612 ✓	April 9, 1998	WIPO				
/KH/	BJ	WO98/18965 ✓	May 7, 1998	WIPO				

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/KH/	CQ	Holland, P.M. et al, Detection of specific polymerase chain reaction product by utilizing the 5'→3' exonuclease activity of <i>Thermus aquaticus</i> DNA polymerase. <b>Proc. Natl. Acad. Sci. USA</b> 88, 7276-7280 (1991)
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	CT	Hyrup, B. et al, Peptide Nucleic Acids (PNA): Synthesis, Properties and Potential Applications. <b>Bioorg. &amp; Med. Chem.</b> 4, 5-23 (1996)
	CU	Iyer, M. et al, Accelerated Hybridization of Oligonucleotides to Duplex DNA. <b>The J. of Biol. Chem.</b> 270, 14712-14717 (1995)
	CV	Jordan, S. et al, New hetero-oligomeric peptide nucleic acids with improved binding properties to complementary DNA. <b>Bioorg. &amp; Med. Chem. Lett.</b> 7, 687-690 (1997)
	CW	Jordan, S. et al, Synthesis of new building blocks for peptide nucleic acids containing monomers with variations in the backbone. <b>Bioorg. &amp; Med. Chem. Lett.</b> 7, 681-686 (1997)
	CX	Ju, J. et al, Fluorescence energy transfer dye-labeled primers for DNA sequencing and analysis. <b>Proc. Natl. Acad. Sci. USA</b> 92, 4347-4351 (1995)
	CY	Kostrikis, L.G. et al, Spectral genotyping of human alleles. <b>Science</b> 279, 1228-1229 (1998)
	CZ	Krotz, A.H. et al, Synthesis of "Retro-inverso" Peptide Nucleic Acids: 2. Oligomerization and stability. <b>Tetrahedron Lett.</b> 36, 6941-6944 (1995)
	DA	Lagriffoul, P.-H. et al, The synthesis, co-oligomerization and hybridization of a thymine-thymine heterodimer containing PNA. <b>Bioorg. &amp; Med. Chem. Lett.</b> 4, 1081-1082 (1994)
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	DC	Lee, L.G. et al, Allelic discrimination by nick-translation PCR with fluorogenic probes. <b>Nucleic Acids Res.</b> 21, 3761-3766 (1993)
	DD	Leone, G. et al, Molecular beacon probes combined with amplification by NASBA enable homogeneous, real-time detection of RNA. <b>Nucl. Acids Res.</b> 26, 2150-2155 (1998)
	DE	Lester, A. et al, PNA array technology. Presented at <b>Biochip Technologies Conference</b> in Annapolis (Oct 1997)
	DF	Lewis, R. Oncor and Chiron Offer Improvements & Alternatives in Gene Amplification. <b>Gen. Eng. News.</b> 17, 3 & 36 (June 1, 1997)
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	DH	Lowe, G. et al, Amino acids bearing nucleobases for the synthesis of novel peptide nucleic acids. <b>J. Chem. Soc., Perkin Trans. 1</b> , 4, 539-546 (1997)
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	DJ	Lowe, G. et al, Solid-phase synthesis of novel peptide nucleic acids. <b>J. Chem. Soc., Perkin Trans. 1</b> , 4, 555-560 (1997)
	DK	Lutz, M.J. et al, Recognition of Uncharged Polyamide-Linked Nucleic Acid Analogs by DNA Polymerases and Reverse Transcriptases. <b>J. Am. Chem. Soc.</b> 119, 3177-3178 (1997)
	DL	Lyamichev, V. et al, Structure-Specific Endonucleolytic Cleavage of Nucleic Acids by Eubacterial DNA Polymerases. <b>Science</b> 260, 778-783 (1993)
	DM	Matray, T.J. et al, Selective and stable DNA base pairing without hydrogen bonds. <b>J. Am. Chem. Soc.</b> 120, 6191-6192 (1998)
	DN	Meldal, M. et al, Anthranilamide and Nitrotyrosine as a Donor-Acceptor Pair in Internally Quenched Fluorescent Substrates for Endopeptidases: Multicolumn Peptide Synthesis of Enzyme Substrates for Subtilisin Carlsberg and Pepsin. <b>Anal. Biochem.</b> 195, 141-147 (1991)
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	DS	Nielsen, P.E. et al, Peptide Nucleic Acid (PNA). A DNA Mimic with a Peptide Backbone. <b>Bioch. n. Chem.</b> 5, 3-7 (1994)
	DT	Nielsen, P.E. et al, Peptide nucleic acids (PNAs): Potential Antisense and Anti-gene Agents. <b>Anti-Cancer Drug Design</b> 8, 53-63 (1993)
	DU	Oncor, Inc. Press Release April 14, 1997.
	DV	Paris, P.L. et al, Probing DNA sequences in solution with a monomer-excimer fluorescence color change. <b>Nucl. Acids Res.</b> 26, 3789-3793 (1998)
	DW	Parkhurst, K.M. et al, Kinetic Studies by Fluorescence Resonance Energy Transfer Employing a Double-Labeled Oligonucleotide: Hybridization to the Oligonucleotide Complement and to Single-Stranded DNA. <b>Biochem.</b> 34, 285-292 (1995)
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	DY	PerSeptive Promotional Literature. Peptide Nucleic Acids (PNA): Expanding the role of synthetic DNA analogs. 1995
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	EA	PerSeptive Promotional Literature. PNA Oligomers as hybridization probes. 1995
	EB	Petersen, K.H. et al, Synthesis and oligomerization of N <sup>6</sup> -Boc-N <sup>α</sup> -(thymin-1-ylacetyl)ornithine. <b>Bioorg. &amp; Med. Chem. Lett.</b> 6, 793-796 (1996)
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	ED	Promisel Cooper, J. et al, Analysis of Fluoroescence Energy Transfer in Duplex and Branched DNA Molecules. <b>Biochem.</b> 29, 9261-9268 (1990)
	EE	Ratilainen, T. et al, Hybridization of peptide nucleic acid. <b>Biochem.</b> 37, 12331-12342 (1998)
	EF	Rye, H.S. et al, Stable fluorescent complexes of double-stranded DNA with bis-intercalating asymmetric cyanine dyes: properties and applications. <b>Nucleic Acids Res.</b> 20, 2803-2812 (1992)
	EG	Scheffler, I.E. et al, Helix formation by dAT oligomers. I. Hairpin and straight-chain helices. <b>J. M. l. Biol.</b> 36, 291-304 (1968)
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	EJ	Sixou, S. et al, Intracellular oligonucleotide hybridization detected by fluorescence resonance energy transfer (FRET). <b>Nucleic Acids Res.</b> 22, 662-668 (1994)
	EK	Sosnowski, R.G. et al, Rapid determination of single base mismatch mutations in DNA hybrids by direct electric field control. <b>Proc. Natl. Acad. Sci. USA</b> 94, 1119-1123 (1997)
	EL	Thisted, M. et al, Detection of immunoglobulin kappa light chain mRNA in paraffin sections by <i>in situ</i> hybridization using peptide nucleic acid probes. <b>Cell Vision</b> 3, 358-363 (1996)
	EM	Thornton, N.B. et al, Chromophore-quencher probes for DNA. <b>New J. Chem.</b> 20, 791-800 (1996)
	EN	Tornac, S. et al, Ionic effects on the stability and conformation of Peptide Nucleic Acid Complexes. <b>J. Am. Chem. Soc.</b> 118, 5544-5552 (1996)
	EO	Tyagi, S. et al, Molecular Beacons: Probes that Fluoresce upon Hybridization. <b>Nature Biotech.</b> 14, 303-308 (1996)
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/KH/	ER	Vaughan, W.M. et al, Oxygen quenching of pyrenebutyric acid fluorescence in water. A dynamic probe of the microenvironment. <b>Bi. ch. m.</b> 9, 464-473 (1970)

/KH/	ES	Wang, G.T. et al, Design and Synthesis of New Fluorogenic HIV Protease Substrates Based on Resonance Energy Transfer. <b>Tett. Lett.</b> 31, 6493-6496 (1990)
	ET	Weber, P.J.A. et al, A fast and inexpensive method for N-terminal fluorescein-labeling of peptides. <b>Biorg. &amp; Med. Chem. Lett.</b> 8, 597-600 (1998)
	EU	Weiler, J. et al, Hybridisation based DNA screening on peptide nucleic acid (PNA) oligomer arrays. <b>Nucleic Acids Res.</b> 25, 2792-2799 (1997)
	EV	Wittung, P. et al, Induced Chirality in PNA-DNA Duplexes. <b>J. Am. Chem. Soc.</b> 117, 10167-10173 (1995)
	EW	Yamamoto, N. et al, A rapid detection of PCR amplification product using a new fluorescent intercalator, the pyrylium dye, P2. <b>Nucleic Acids Res.</b> 23, 1445-1446 (1995)
	EX	Yang, M. et al, A DNA assay based on fluorescence resonance energy transfer and DNA triplex formation. <b>Analy. Biochem.</b> 259, 272-274 (1998)
	EY	Yaron, A. et al, Intramolecularly quenched fluorogenic substrates for hydrolytic enzymes. <b>Analy. Biochem.</b> 95, 228-235 (1979)
	EZ	Zimmerman, M. et al, A New Fluorogenic Substrate for Chymotrypsin. <b>Anal. Biochem.</b> 70, 258-62 (1976)
	FA	Ratilainen, T. et al, Hybridization of Peptide Nucleic Acid. <b>Biochem.</b> 37, 12331-12342 (1998)
	FB	Wang, J. et al, Peptide nucleic acid probes for sequence-specific DNA biosensors. <b>J. Amer. Chem. Soc.</b> 118, 7667-7670 (1996)
	FC	Corey, D.R., et al. Peptide Nucleic Acids: expanding the scope of nucleic acid recognition. <b>Tibtech.</b> 15, 224-229 (1997)
	FD	Nielsen, P.E., Peptide Nucleic Acid. A Molecule with Two Identities. <b>Acc. Chem. Res.</b> 32, 624-630 (1999)
	FE	Ortiz, E., et al. PNA molecular beacons for rapid detection of PCR amplicons. <b>Molecular and Cellular Probes.</b> 12, 219-226 (1998)
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	FG	Parkhurst et al., Donor-Acceptor Distance Distributions In A Double-Labeled Fluorescent Oligonucleotide Bost As A Single Strand And In Duplexes. <b>Biochemistry.</b> 34, 293-300 (1995)
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/KH/	FI	Demers, D. et al, Enhanced PCR amplification of VNTR locus D1S80 using peptide nucleic acid (PNA). <b>Nucleic Acids Research.</b> 15, 3050-3055, (1995)

